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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/680,290

10/08/2003

Daniel N. Galburt

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02/11/2005

STERNE, KESSLER, GOLDSTEIN & FOX PLLC
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WASHINGTON, DC 20005

EXAMINER

NGUYEN, HANH N

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/680,290

Applicant(s)

GALBURT, DANIEL N.

Examiner

Nguyen N. Hanh

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "plurality of thermal conductive strips includes a microtube with a cooling liquid flowing therethrough" must be shown or the feature canceled from claims 5 and 16. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 4, 6-11, 14, 15, 17, 18 and 20-23 are rejected under 35 U.S.C. 102(e) as being ante by anticipated by Randall.

Regarding claim 1, Randall discloses an actuator comprising: a coil (26 in Fig. 3) of wire carrying current to form a magnetic field generated by separate magnetic components; a cooling tube (56 in Fig. 4) having cooling liquid flowing therethrough in proximity of the coil of wire but outside the coil of wire, and wrapped around a periphery of said coil of wire; and a plurality of thermal conductive strips (28 in Fig. 3) arranged generally transverse to at least portions of said coil of wire so as to conduct heat from said coil of wire to said cooling tube (Col. 5, lines 5-10).

Regarding claim 11, Randall also discloses a coil plate assembly comprising: a base plate (22 in Fig. 3 and 4); a cooling tube (56) having a cooling fluid flowing therethrough; a plurality of coil windings (26) arranged symmetrically around said base plate and perpendicular to said base plate, each coil winding generating a magnetic field, wherein said cooling tube is wrapped around a periphery of said coil winding; each coil winding further including a plurality of thermal conductive strips (28 in Fig. 3)

arranged generally transverse to at least portions of said race track winding so as to conduct heat from said coil winding to said cooling tube (Col. 5, lines 5-10).

Regarding claim 23, it is noted that all limitations of the claimed invention have been fulfilled by Randall as in claims 1 and 11.

Regarding claims 3 and 14, Randall also discloses an actuator coil (or the coil plate assembly as in claim 14) wherein the plurality of thermal conductive strips are arranged in a coil (portion 32 of strip 28).

Regarding claims 4 and 15, Randall also discloses an actuator coil (or the coil plate assembly as in claim 15) wherein the plurality of thermal conductive strips are arranged side-by-side.

Regarding claims 6 and 17, Randall also discloses an actuator coil (or the coil plate assembly as in claim 17) wherein the plurality of thermal conductive strips are formed of a metal (Col. 5, lines 63-67).

Regarding claims 7 and 18, Randall also discloses an actuator coil (or the coil plate assembly as in claim 18) wherein the plurality of thermal conductive strips are formed of any one of steel, gold, aluminum, copper, graphite and graphite fibers (Col. 5, lines 63-67).

Regarding claims 8 and 20, Randall also discloses the actuator coil wherein said coil of wire (26 in Fig. 3) is a racetrack winding.

Regarding claims 9 and 21, Randall also discloses the actuator coil wherein said coil of wire (26 in Fig. 3) is a flat coil.

Regarding claims 10 and 22, Randall also discloses the actuator coil wherein said coil of wire is a plurality of overlapping coils (inherent because as shown in Fig. 3, plurality of overlapping coils 26 are wrapped around the pole 24 until they reach the overhang 42).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randall in view of Derleth et al.

Regarding claims 2 and 13, Randall shows all limitations of the claimed invention except for showing the actuator coil further comprising a cooling jacket around one side of said coil of wire and around said cooling tube.

However, Derleth et al. disclose an electric motor wherein the actuator coil further comprising a cooling jacket around one side of said coil of wire and around said cooling tube for the purpose of optimizing the heat transport (Col. 3, lines 13-17).

Since Randall and Derleth et al. are in the same field of endeavor, the purpose disclosed by Derleth et al. would have been recognized in the pertinent art of Randall.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Randall by using a cooling a cooling jacket

around one side of said coil of wire and around said cooling tube as taught by Derleth for the purpose of optimizing the heat transport.

4. Claims 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randall in view of Cashmore et al.

Regarding claims 5 and 16, Randall shows all limitations of the claimed invention except for showing the actuator coil wherein each of said plurality of thermal conductive strips includes a microtube with a cooling liquid flowing therethrough.

However, Cashmore et al. disclose an electric motor wherein the actuator coil wherein each of said plurality of thermal conductive strips (46 in Fig. 2A) includes a microtube (56) with a cooling liquid flowing therethrough (Col. 7, lines 20-25) for the purpose of collecting heat generated from the windings (Col. 3, lines 1-5).

Since Randall and Cashmore et al. are in the same field of endeavor, the purpose disclosed by Cashmore et al. would have been recognized in the pertinent art of Randall.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Randall by using a microtube for a thermal conductive strip with a cooling liquid flowing therethrough as taught by Cashmore et al. for the purpose of collecting heat generated from the windings.

5. Claim 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Randall in view of Kim.

Regarding claim 12, Randall shows all limitations of the claimed invention except for showing the actuator coil further comprising a plurality of focusing coils mounted on said base plate.

However, Kim disclose an actuator further comprising a plurality of focusing coils (Col. 2, lines 51) mounted on the stator for the purpose of providing vertical movement of the rotor (Col. 2, lines 66-67).

Since Randall and Kim are in the same field of endeavor, the purpose disclosed by Kim would have been recognized in the pertinent art of Randall.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Randall by using a plurality of focusing coils mounted on said base plate as taught by Kim for the purpose of of providing vertical movement of the rotor.

6. Claim 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Randall in view of Seki et al. and further in view of Ishida.

Regarding claim 19, Randall shows all limitations of the claimed invention except for showing the actuator coil wherein said plurality of thermal conductive strips includes a plurality of stacked insulated wire staples.

However, Seki et al. disclose a motor wherein said plurality of thermal conductive strips includes a plurality of stacked wire staples (Fig. 5) for the purpose of providing a motor with high cooling efficiency (Col. 1, line 62).

Moreover, Ishida discloses a motor wherein cooling pipe (3 in Fig. 1) is insulated with a layer of resin (7) for the purpose of preventing electric short circuit.

Since Randall, Seki et al. and Ishida are in the same field of endeavor, the purpose disclosed by Seki et al. and Ishida would have been recognized in the pertinent art of Randall.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Randall by using a plurality of thermal conductive strips includes a plurality of stacked insulated wire staples as taught by Seki et al. and Ishida for the purpose of providing a motor with high cooling efficiency and preventing electric short circuit.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

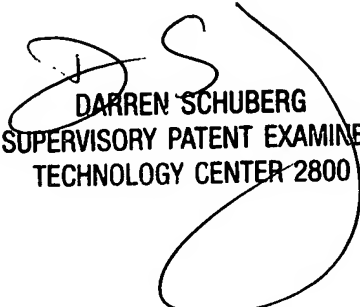
If attempts to reach the examiner by telephone are unsuccessful, the examiner 's supervisor, Darren Schuberg, can be reached on (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Art Unit: 2834

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

February 4, 2005


DARREN SCHUBERG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800